

REMARKS

A substitute specification is being submitted herewith together with a copy of the original marked-up specification showing the changes thereto. No new matter has been added.

Claim 1 has been rejected by the Examiner under 35 U.S.C. §102(b) as being anticipated by or, in the alternative, under 35 U.S.C. §103(a) as being obvious over Yamamoto, U.S. patent 3,533,984. These rejections are respectfully traversed.

The present invention is directed to producing a full, dull polyamide 6 yarn which has excellent weightiness (drape property) and desired physical properties. These advantageous properties can be achieved by uniformly dispersing a desired amount (1.5 to 2.5 percent by weight) of titanium dioxide in the polyamide 6 yarn. However, the dispersibility of large amounts of titanium dioxide (1.5 to 2.5 percent by weight) uniformly in the polyamide 6 yarn had been difficult to achieve without degrading the operational ability and physical properties of the yarn. According to the present invention a full, dull polyamide 6 yarn which contains 1.5 to 2.5 percent by weight of titanium dioxide relative to the weight of the yarn is obtained wherein the 35 to 95 titanium dioxide particles having a major axial length greater than 5 micrometers is present in 50 mg of the yarn, which also contains 0.1 to 0.5 percent by weight of a phosphate salt as a wetting agent. Thus the present invention focuses on the properties of the titanium dioxide in achieving uniform dispersibility of the titanium oxide in the polyamide 6 yarn.

Table 2 on page 26 of the present application provides an evaluation of the physical properties of a yarn when following the teachings of the present invention as recited in claim 1 of the present application. Thus, when the content of titanium dioxide is dispersed within a range of 1.5 – 2.5 % by weight and the number of condensed particles of titanium dioxide having a major axial length of greater than 5 mm contained in 50 mg of the yarn fall within the range of 35 – 95, advantageous results are achieved with respect to the dispersibility of the titanium-dioxide as well as

the full dull property and drape property of the treated yarn. On the other hand, when the content of the titanium dioxide falls outside of the above range and the number of condensed particles falls outside of the above range as can be seen by referring to Comparative Example 1 and Comparative Example 2 in Table 2 of the present application it can be seen that disadvantageous results are achieved with respect to dispersibility of titanium dioxide and the full dull and drape properties of the treated yarn. Thus, the Applicants have identified a number of parameters as they relate to titanium dioxide for achieving particular advantageous results.

The Yamamoto et al. patent is also interested in achieving a uniform dispersion of titanium dioxide in a polyamide 6 yarn but focuses on the particular dispersing agent and the amount of the dispersing agent for achieving a uniform dispersion of the titanium dioxide in the amide polymer. Thus, the Yamamoto et al. patent utilizes a phosphoric acid ester type or phosphoric acid salt type surface active agent as a dispersing agent for attempting to uniformly disperse titanium dioxide in the amide polymer. Thus, the Yamamoto patent appears to solve the problem of dispersibility in a completely different manner when compared to the present invention. There is no mention in the referenced patent of the use of 35 – 95 titanium dioxide particles having a major axial length of greater than 5 mm contained in 50 mg of the yarn and there is no recognition of the desirability of controlling the amount of titanium dioxide in the yarn within the range of 1.5 – 2.5 % by weight as recited in claim 1 of the present application. On page 2, in paragraph 4 of the Office Action letter, the Examiner states that the Yamamoto patent teaches a delustered nylon 6 yarn containing about 2 - 10 % of uniformly dispersed titanium dioxide. However, the only reference to 2 - 10 % made in the patent appears to be in column 2, line 42, but this percentage range is not referring to titanium dioxide but rather to the preferred amount of dispersing agent, that is, the phosphoric acid ester type or phosphoric acid salt type surface active agent which is utilized as the dispersing agent.

Accordingly, it is clear that the Applicants have identified specific parameters which are effective in achieving specific results, and none of these parameters are even remotely suggested by the Yamamoto et al. patent. Accordingly, in view of the above remarks, reconsideration of the rejections and allowance of claim 1 of the present application are respectfully requested.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

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